

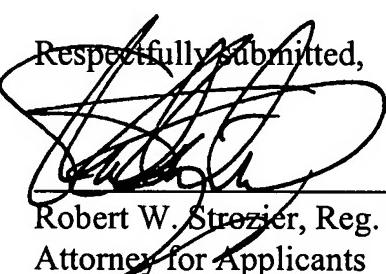
2 the or each grooved laminating roller is at least 15%, preferably at least 20%, more  
3 preferably at least 30% of the pitch of the grooved of that roller.

1 197.(new) A laminating apparatus comprising a grooved roller for fluting a first ply of  
2 thermoplastic polymer material, a grooved roller for fluting a second ply of thermoplastic  
3 polymer material, means for directing the first and second plies from their respective grooved  
4 rollers between a set of laminating devices with the plies arranged in face to face contact with  
5 one another and with the flutes of the first ply generally directed at an angle to the flutes of  
6 the second ply, the set of laminating devices, comprising, on the side facing the second ply,  
7 a heated porous bar and on the side facing the first ply, an opposite laminating device,  
8 wherein said porous bar is adapted to produce a film of hot air to press the plies towards the  
9 opposite laminating device and bond the plies together at the crests of the flutes of the second  
10 ply to form a laminate, and the opposite laminating device is a roller or a porous bar, the  
11 grooved fluting rollers having groove pitches such that in the laminate the plies each have  
12 flutes of wavelength less than 10 mm and the flutes of at least one of the plies have a  
13 wavelength no longer than 5 mm.

1 198.(new) The apparatus according to claim 197, wherein the pitch of any grooved roller  
2 is no more than 4 mm, preferably no more than 3 mm, more preferably no more than 2 mm.

3 Date: June 9, 2005

Respectfully submitted,

  
Robert W. Strozier, Reg. No. 34,024  
Attorney for Applicants